

AVIAN COMMUNITIES OF STREAMSIDE ZONES IN THE OUACHITA MOUNTAINS OF ARKANSAS

Ronald E. Thill, Philip A. Tappe, M. Anthony Melchiors, and T. Bently Wigley¹

Linear strips of forest along intermittent and perennial streams, commonly called streamside zones (SZs), are frequently retained for watershed protection and wildlife habitat enhancement in southern pine forests when adjacent stands are harvested. However, little is known regarding wildlife communities associated with SZs, particularly in relation to varying SZ widths and interactions with surrounding habitat matrices. The objective of this study was to assess relationships between forest bird communities and SZs of various widths within pine plantations of several age/structural classes within the Ouachita Mountains of Arkansas.

We studied breeding bird communities in SZs of 6 width classes (0-246 m) flanked by loblolly pine (*Pinus taeda*) plantations of 3 age/structural classes (young/open, closed canopy, and older/thinned) yielding a matrix of 18 stands. Three sets of these matrices were studied for 2 years each between May 1989 and February 1995. During each 2-year sampling period, we also sampled one untreated riparian forest that had no adjacent plantations. We were unable to locate the widest class SZ within a thinned plantation during the 1989-90 sampling period; consequently, we sampled a total of 53 SZ/plantation settings plus 3 untreated controls. Data were generally obtained from one 80-m-wide by 200-m-long strip transect centered on each stream. Thus, for

SZs averaging < 80 m in total width, varying proportions of SZ and plantation habitat were sampled. Six observers sampled each area for 30 minutes twice each spring between early May and mid-June.

Nearctic-Neotropical migrants comprised > 50 percent of birds and species encountered, regardless of SZ width. Although bird abundance, species richness, and diversity varied little with SZ width, bird composition changed with increasing SZ width. Birds frequenting narrower SZs were mainly those associated with young brushy stands and edge habitat, while those frequenting wider SZs were mostly species associated with mature pine-hardwood and bottom-land hardwood forests. Avian abundance, richness, and diversity within SZs flanked by plantations were generally comparable to or higher than those found in the three untreated controls. These measures tended to be higher when SZs were flanked by young/open plantations and lower when flanked by closed-canopy plantations. Brown-headed cowbirds (*Molothrus ater*) were more abundant in narrower SZs. Streamside zone policies should accommodate species strongly associated with riparian habitat and with high conservation priority. Management policies that promote a variety of SZ widths, related to stream and flood-plain characteristics, should enhance avian diversity within pine-plantation-dominated landscapes.

¹ Supervisory Research Wildlife Biologist, Southern Research Station, Nacogdoches, TX 75962; Associate Professor, School of Forest Resources, University of Arkansas at Monticello, Monticello, AR 71656; Forest Wildlife Biologist, Weyerhaeuser Company, Hot Springs, AR 71902; Eastern Wildlife Program Leader, National Council of the Paper Industry for Air and Stream Improvement, Clemson University, Clemson, SC 29634-0362.

Citation for proceedings: Guldin, James M., tech. comp. 2004. Ouachita and Ozark Mountains symposium: ecosystem management research. Gen. Tech. Rep. SRS-74. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southern Research Station. 321 p.